

5. Which is a function of lipids?
- a) to supply cells with quick-release energy
- b) to provide the body with insulation
- c) to store genetic information
- d) to regulate cell processes
6. Which best explains the function of the sequence of nucleotides?
- a) It provides energy.
- b) It carries genetic information.
- c) It allows DNA to be successfully copied.
- d) It determines the shape of the DNA molecule.
7. Proteins are compounds formed in the cells of plants and animals. Which element is included in every protein molecule?
- a) calcium
- b) carbon
- c) fluorine
- d) sodium
8. Which is a **least likely** primary function of proteins?
- a) to act as an organic catalyst
- b) to supply short-term energy
- c) to build and repair damaged cells
- d) to defend against foreign invaders
9. Fats are specialized lipid molecules, and enzymes are specialized protein molecules. How do the functions of fats and enzymes differ?
- a) Fats are structural building materials, while enzymes are transportation molecules.
- b) Fats provide support for cells, while enzymes lower the pH of gastric fluids.
- c) Fats regulate body functions, while enzymes denature invasive bacteria.
- d) Fats are storage molecules, while enzymes are catalytic molecules.
10. Which organic molecule serves as a catalyst?
- a) lipids
- b) proteins
- c) nucleic acid
- d) carbohydrates
11. Which are the building blocks of most lipid molecules?
- a) glucose and protein
- b) glucose and fatty acids
- c) fatty acids and glycerol
- d) amino acids and glycerol

12. What is the significance of nucleic acids for cells?

- a) They generate energy for the cell. b) They restrict what enters and leaves the cell.
- c) They support and maintain the shape of the cell. d) They provide all instructions for cellular activities.

13. Which best explains enzyme specificity?

- a) An enzyme reacts best at a certain pH. b) An enzyme reacts best at a certain temperature.
- c) An enzyme is able to react with only one substrate. d) An enzyme is able to react with many different substrates.

14. A solution with a pH of 2 is _____ times more acidic than one with a pH of 5.

- a) 3 b) 10
- c) 100 d) 1000
- e) 100000

15. Which of the following is correctly matched?

- a) Proteins-nucleotides b) Lipids-glycerol
- c) Carbohydrates-amino acids d) DNA-glucose
- e) None of the above

16. A polysaccharide found in plants whose function is storage is

- a) starch b) glycogen
- c) chitin d) glucagon
- e) cellulose

17. Enzymes function because of their particular shape of conformation. Which level of protein structure most directly responsible for the shape of a protein?

- a) Primary b) Secondary
- c) Tertiary d) Quaternary
- e) Cannot be determined

18. What does Gibbs Free Energy tell us?

- a) How much energy is given off by a reaction. b) The tendency of a reaction to become "random"
- c) How spontaneous a reaction is.

19. Which of the following situations demonstrates high entropy?

- a) water freezing b) water vaporizing
- c) steam condensing to water

20. The amount of energy required to raise the temperature of one gram of pure water by one degree Celsius is defined as:

- a) a joule b) a watt
- c) a calorie d) heat

21. Which of the following is true for anabolic reactions?

- a) They are spontaneous and breakdown molecules. b) They are nonspontaneous and breakdown molecules.
- c) They are spontaneous and build molecules. d) They are nonspontaneous and build molecules.

22. Endergonic reactions require:

- a) an input of energy b) a release of energy
- c) do not change energy

23. Which type of reaction increases entropy?

- a) Endergonic b) Nonspontaneous
- c) Synthesis d) Exergonic

24. How do enzymes function?

- a) They lower the activation energy necessary for a reaction to occur. b) They raise the activation energy necessary for a reaction to occur .
- c) They change the pH of a reaction. d) They cause the reaction to denature.

25. Which of the following do not affect enzymes ability to function?

- a) pH b) substrate
- c) temperature d) water

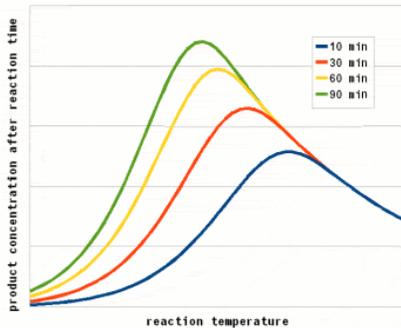
26. In general, enzymes do NOT:

- a) bind permanently to their substrates b) have names ending in -ase
- c) have their function changed with extremely high temperatures d) react with a specific substrate

27. The break down of larger molecules into small one.

- a) metabolism b) catabolism
- c) anabolism d) oxidation

28.



What type of reaction is occurring in this graph?

- a) endergonic b) exergonic
- c) unable to determine

29. Energy is released from ATP when

- a) a phosphate group is added b) adenine bonds to ribose
- c) ATP is exposed to sunlight d) a phosphate group is removed

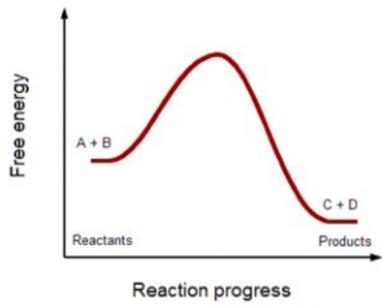
30. Which of the following is an example of potential rather than kinetic energy?

- a) the flight of an insect foraging for food b) the muscle contractions of a person mowing grass
- c) water rushing over Niagara Falls d) a molecule of glucose

31. The place, other than the active site, where activators and inhibitors bind to an enzyme is called the _____ site.

- a) competitive b) allosteric
- c) alterior d) rate

32.



If a process is spontaneous, what can be said about the Gibbs Free Energy of the process?

a) ΔG is negative

b) ΔG is positive

c) ΔG is zero

Answer Key

1. a
2. c
3. a
4. c
5. b
6. b
7. b
8. b

9. d
10. b
11. c
12. d
13. c
14. d
15. b
16. a

17. c
18. c
19. b
20. c
21. d
22. a
23. d
24. a

25. d
26. a
27. b
28. a
29. d
30. d
31. b
32. a